Yandell (D. W.)

A CLINICAL LECTURE

ON THE USE OF

PLASTIC DRESSING

IN

FRACTURES OF LOWER EXTREMITY.

By DAVID W. YANDELL, M. D.,

Professor of the Science and Art of Surgery and Clinical Surgery in the University of Louisville.

Reprinted from the American Practitioner, July, 1876.

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TO PHYSICIANS.

We beg to invite your attention to the fact that arrangements have been made for the simultaneous publication of the AMERICAN PRACTITIONER in Louisville and Indianapolis. In Louisville the journal will be issued by John P. Morton & Co., while in Indianapolis its publishing interests will be in the hands of Yohn & Porter.

Its editorial management will remain as heretofore. It is the purpose, however, of the editors to give increased attention to every department of the American Practitioner, now entering on the seventh year of its publication, and strive to make it even more worthy than hitherto of the support of the profession. We have perfected arrangements with our former corps of contributors to whose pens the journal has owed its position as one of the leading medical periodicals of the times, and in addition have promised for its pages communications from writers of distinction in almost every part of the country, enabling us to assure our friends that the ORIGINAL DEPARTMENT of the American Practitioner will be all that could be asked.

We respectfully request your support not only as subscribers but as contributors also.

Respectfully,

DAVID W. YANDELL.
THEOPHILUS PARVIN.

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FRACTURES OF LOWER EXTREMITY.

BY DAVID W. YANDELL, M. D.*

Gentlemen: The other day, after I had dressed a fractured leg in your presence, a member of the class asked me, "*What was the best time to put up such fractures?*" My answer, you may remember, was, "*The earliest possible moment after the bone was broken. The sooner the better.*" And now, after weighing my experience in such cases as carefully as I am capable of doing, I wish to add this to my reply on that occasion: *Dress the fracture, if you can, on the spot.* Do not, if it can be avoided, have the patient moved a single foot from where he received the injury; for he can undergo no movement of the limb without augmenting his pain and increasing his risks.

A little while back a merchant of this city got a simple fracture of the bones of the leg. He was put in a spring wagon, and started to his house. On the way the upper end of the tibia was thrust through the skin, and what, when he left his store, was a simple subcutaneous wound, had, before he reached his residence, been made an open wound and converted into a compound fracture. The second accident

* Phonographically reported.

was worse than the first. I saw more than a score of times, during the late war, soldiers who were started to the rear with simple fractures of the lower extremity, who, when they reached the hospitals, had compound fractures. The jolting inseparable from the best managed transportation on wheels almost certainly gives rise to pain, which means, in almost every instance, additional injury to the soft parts, and, as I have just remarked, it is sometimes even sufficient to change a simple into a compound fracture. Carrying patients with broken legs on litters on men's shoulders is safer than on wheels, but this can not conveniently be done except for short distances; and no matter how carefully it may be executed, it is nevertheless obnoxious in some degree to the objections I have just named. And this, too, though the surgeon may himself superintend the transfer, and before undertaking it encase the injured limb in a temporary, or what has come to be known as a field dressing; for this dressing, however well applied, is after all but a make-shift—it gives pain and disturbs the fragments of bone while it is being put on, and does the same when it is taken off.

Some years ago, when my lamented colleague, Professor Bayless, was lecturing one day on the subject of fractures, I was called to see a negro man with a broken thigh. I remembered it was the hour for my friend's lecture. The patient, who wished to go to hospital, was only a few blocks from the University. I thought the case would be an agreeable surprise to Dr. Bayless, and would serve better than diagrams or words to illustrate the subject of his lecture, and so after adjusting the fragments and applying a good field dressing to the limb, I placed the patient on a stretcher, and this on the shoulders of four stout men, and putting these under way, I accompanied the cortege to the lecture-room. When we took up our march, I must believe the broken bone was well in place; but when we reached our destination, and removed the dressing, the extremities of the fractured femur were frightfully displaced, and the sufferings of the patient extreme. A part of both these features was due

to the motion which is well nigh inseparable from every attempt to transfer persons with broken legs from one spot to another, and a part to the violent spasmodic action of the injured muscles which, primarily lacerated, were still further vexed by being still further disturbed.

So my injunction to you to-day is that if you would encounter a broken leg when the injury done is at the minimum, when in dressing it you would give least pain, and have it most in your power to avert inflammation and all the evils which journey in its train, you must do so on the spot where the accident has occurred, and as soon afterward as you can get to it. Every inch that a fractured leg is moved is hurtful; every moment lost before putting it up is injurious.

A man in the employ of the gas company here sustained a fracture in the lower third of the leg, within a few feet of my office door. In less than forty minutes after, the plastic dressing was drying on the broken limb. Two hours later the patient was removed without the least suffering to his home, a mile away, and had he been accustomed to their use might have walked on crutches the next morning.

It will oftentimes happen, however, that the opportunity to act with the promptness I have advised is not afforded you. You may not see the fracture until after swelling has set in, and the limb has grown painful and red and hot. What hen? Why, do just this: Put the fracture up as soon as you can get your dressing ready. Go to work then and there, and encase the limb in some form of fixed apparatus. It may be Paris plaster, or eggs and flour, or glue and zinc, or liquid glass, or shoemaker's paste; only let it be something plastic, and apply it instantly.

Those of you who have been following these lectures longest can not recall a single instance in which you ever saw me postpone dressing a fractured leg or thigh because of swelling in the parts. On the contrary, I have unvaryingly inculcated that swelling and pain are to be regarded as but so many additional reasons for fixing the limb—for rendering it immovable—for placing the fragments so that neither the

movements of the patient nor spasms of the muscles can disturb them. Pain, as Mr. Hilton in his lectures on that subject has so well expressed it, is a monitor—*the* monitor, as he puts it; and here it clearly seems placed to warn the surgeon against further delay in fixing the limb, and so fixing it that displacement can by no possibility again occur. Nor is swelling to be regarded as much the inferior of pain itself as a monitor. The two speak the same language. If you are truly wise, you will heed alike the voice of both; their admonitions are the same—they are calls for rest; and I beg you to believe that the more quickly and the more perfectly you secure this, the more rapidly and the more completely will they quit the broken limb. Oftentimes the injury done to the soft parts by the ends of the bones being suddenly and violently displaced by muscular action, or by change in the position of the patient, gives rise to some of the greatest dangers which occur in fractures. Hence, the sooner you adjust the fragments, and the more securely you provide against their subsequent displacement, the better you will have treated the case. Let neither pain nor swelling deter you from dressing the limb at once. If you see the fracture first at night, I pray you wait not till morning to put it up. Don't trust to sand-bags, or pillows, or splints, or this or that other device, and finally take your leave, saying you will call in the morning. A sight of mischief may occur between midnight and sunrise.

Some years ago a pilot jumped from the hurricane deck of a burning steamboat at the wharf at St. Louis, on to the boiler deck of a boat lying alongside, and sustained a fracture of both bones of the leg. The limb was well put up in splints, and the patient brought by rail to his home in this city. Forty-eight hours after the accident, when I first saw him, the limb was much swollen and very painful. I applied the plastic dressing at once, and had the satisfaction, not only of relieving all suffering immediately, but also of saving a man of very feeble constitution from the long confinement inseparable from any other mode of treatment.

An old gentleman fell, one Tuesday, and broke the two bones of the right leg about their middle. A medical man dressed the parts in the usual way. Thirty-six hours after I found the limb hot, painful, and much swollen. Did I wait for these conditions to abate? Not a bit of it. I ripped up the wrappings in which the leg had been enveloped and put on the final and only dressing which is required in such cases. The next day the patient sat up, and on the following Sunday he went on crutches, with his foot in a sling, two hundred yards to church.

A lady trod on a bit of orange peel, fell and broke her femur in its upper fourth. My friend, Professor Bayless, who, though he reposed great trust in the plastic apparatus, preferred waiting the conventional fortnight for the swelling, and so forth, to subside, applied the long splint, and made the orthodox extension and counter-extension enjoined in such cases. The limb swelled enormously, and the pain was extreme. At the end of three days of very great suffering, I saw the case with my colleague, and applied the plastic dressing while the patient was under chloroform. There was no more pain after that, and in a week the lady could, when assisted, get on crutches and move about her room.

From that day, my lamented predecessor became a convert to the immediate application of the fixed apparatus, and among the last services it was my privilege to render him, when his failing health obliged him to abandon such work as called for much physical exertion, was putting up a broken thigh in one of his patients immediately after the accident happened. In that case there was no swelling; none had had time to occur, and the early application of the dressing had most certainly prevented swelling. In proof of this I need only refer you to my own experience in its use, and state that in all the cases in which I have applied it *I have never had occasion to remove it on account of swelling in a single one.* Many times when I have applied it to limbs already swollen, I have been obliged afterward to open it and overlap the edges, or trim them down, in order to adapt the bandage to

the shrunken condition of the parts. Nor is this my own observation alone. I may fairly say that it includes the experience of two surgeons very favorably known to you—Professor Cowling and Dr. Roberts, both of whom, former pupils and chiefs of this clinic, are now colleagues, and who, as I believe, have never dressed any fracture of either the leg or thigh by any other than the fixed apparatus. These gentlemen will tell you, as I have done, that when the plastic dressing is applied to a fracture before swelling occurs, none will occur; and that when it is applied after swelling has taken place, the swelling will begin at once to abate and soon disappear altogether.

Nor do these remarks apply alone to simple fractures of the lower extremity. They are equally true of compound fractures in this situation.

A boy, eleven years old, got a compound, comminuted fracture of the left tibia, just below the tubercle. The laceration of the soft parts was considerable. I picked out with my fingers a number of loose fragments of bone, brought the edges of the wound together, and three hours after the accident put the limb in the immovable apparatus. I then cut out a space sufficient to dress and watch the wound. In less than a week the lad went in a wagon, over a rough road, nine miles into the country. In nine weeks he walked into my office with a firm, smart step, and without the slightest shortening.

Three years ago, while Professor Cowling was serving his term at the hospital, Pat Stanton, whom you occasionally see at this clinic, got an extensive compound, comminuted fracture of the right leg. The contusion and laceration of the soft parts were simply frightful. The accident happened in this wise, and I mention it in order that you may the better appreciate the real magnitude of the injury. Stanton and a fellow laborer were engaged in lowering a lot of whisky from the street into a very deep cellar. Stanton's post was in the cellar. By some mismanagement one of the barrels rolled off the ways on which it had been placed, and fell a distance

of twelve or eighteen feet on to Stanton's leg. Now, a barrel of whisky, taken at stated periods, is one thing; but taken on a sudden and on one's leg, is another and a very different thing. Stanton was removed to the hospital, where he was soon seen by Dr. Cowling; the internes, in the meantime, having decided that it was clearly a case for amputation. I was sent for, and when, after consultation, it was decided to attempt to save the leg, Stanton drew me near him, and in a feeble voice, for he was still suffering from shock, said: "Doctor, had you told me my leg had to come off, I should have asked you to put a pistol ball through my head, and let me go at once." The plastic dressing was used instead of either the knife or the pistol, and you may now see Stanton almost any day earning his living on two good legs as a street cleaner. I hope you will not encounter, indeed it would be difficult to conceive of, a more unpromising case than Stanton's, or one which put the fixed apparatus to a severer test. I am convinced that no other dressing could have secured the same happy result; and even this would, I believe, have failed had its application been delayed for the ten or twelve days advised by some surgeons.

In 1870, when I had six years' less experience than I now have in the use of the plastic dressing, and when among surgeons generally there was less positive knowledge of the inestimable advantages of its immediate application, I stated* that if the bandages were cut throughout their entire length, as soon as dry, and their edges subsequently brought together either by additional strips or by loop-knots, the principal objection urged against this dressing, namely, that it may become too tight as the swelling augments, or too loose as the swelling subsides, would be obviated. This statement grew out of my respect for the opinions of my seniors rather than out of the teachings of my own experience; for at that very time I was unable to recall a single instance where the dressing once applied, before swelling had occurred, that it

* American Practitioner, July, 1870.

afterward became necessary to remove it because of swelling. *A limb timely put up in the plastic apparatus will not swell.* That is my dictum to-day. Hence there will be no occasion to open the dressing in these cases. Where swelling already exists it may, on subsiding, leave the limb, as you have seen, so shrunken as to render it necessary to cut and refit the bandage; but it is in these cases and these alone.

To conclude: What I wish to impress upon you to-day is, that the best time to dress these fractures is the first moment after they have been inflicted. Every moment of delay is hurtful. The best place is on the spot where they have occurred. Every inch the limb is moved is an injury; and, finally, no dressing is comparable to the fixed dressing.